CLAIMS

1. An antisense oligonucleotide for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, said oligonucleotide being directed against a nucleic acid sequence coding for a common subunit of the IL-3, IL-5 and GM-CSF receptors.

2. The oligonucleotide of claim 1, wherein the nucleic acid sequence coding for the receptor is a nucleic acid coding for the common beta sub-unit of the IL-3, IL-5 and GM-CSF receptors.

3 The oligonucleotide of claim 1, wherein said oligonucleotide has a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, , SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22 and SEQ ID NO:23.

4. A pharmaceutical composition for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, said composition comprising at least one antisense oligonucleotide as defined in claim 1, 2 or 3, in association with a pharmaceutically acceptable carrier.

5. Use of an oligonucleotide as defined in claim 1, 2 or 3 for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer.

6. Use of a pharmaceutical composition as defined in claim 4 for treating and/or preventing asthma,

allergy, hypereosinophilia, general inflammation or cancer.

7. A method for treating and/or preventing asthma, allergy, general inflammation or cancer, said method comprising the step of administering an effective amount of an oligonucleotide as defined in claim 1, 2 or 3, to a patient in need of such a treatment.

8. Use of an oligonucleotide as defined in claim 1, 2 or 3 for the manufacture of a medicament for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer.

9. Use of a pharmaceutical composition as defined in claim 4 for the manufacture of a medicament for treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer.

10. A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors.

11. The pharmaceutical composition according to claim 10, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

12. The pharmaceutical composition according to claim 10, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

13. The pharmaceutical composition according to claim 10, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16 and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

14. The pharmaceutical composition according to claim 10, further comprising at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

15. The pharmaceutical composition according to claim 14, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

16. A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

17. The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

18. The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

19. The pharmaceutical composition according to claim 16, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16 and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

20. A pharmaceutical composition comprising at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

21. The pharmaceutical composition according to claim 20, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

22. The pharmaceutical composition according to claim 20, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

23. The pharmaceutical composition according to claim 20, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7, and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

24. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors.

25. The method according to claim 24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

26. The method according to claim 24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

27. The method according to claim 24, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; and at least one oligonucleotide directed

against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

28. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors, at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors, and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

29. The method according to claim 28, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

30. The method according to claim 28, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

31. The method according to claim 28, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

32. The method according to claim 28, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO: 6, and SEQ ID NO:7; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO: 20, SEQ ID NO:22, and SEQ ID NO:23.

33. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

34. The method according to claim 33, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

35. The method according to claim 33, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

36. The method according to claim 33, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-3, IL-5 and GM-CSF receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

37. A method of treating and/or preventing asthma, allergy, hypereosinophilia, general inflammation or cancer, the method comprising administering to a patient at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and

IL-13 receptors and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor.

38. The method according to claim 37, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7.

39. The method according to claim 37, wherein at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.

40. The method according to claim 37, wherein at least one oligonucleotide directed against a nucleic acid encoding a common subunit of the IL-4 and IL-13 receptors is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7; and at least one oligonucleotide directed against a nucleic acid encoding a CCR3 receptor is selected from the group consisting of the oligonucleotides listed in the sequence listings as SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, and SEQ ID NO:23.